

is claimed.

1. A method for power gating a downlink beam frame signal, the method comprising:

transmitting, to form a single frame, at least a first header signal, a first payload signal, a second header signal, and a second payload signal;

when a power gating signal is active, removing RF power from at least one of the first header signal and first payload signal in combination, and the second header signal and second payload signal in combination, thereby reducing DC power consumption.

2. The method of claim 1, further comprising hopping the downlink beam frame signal between at least two terrestrial cells.

3. The method of claim 2, further comprising the step of activating the power gating signal based on the terrestrial cell to which the downlink beam frame signal is currently hopped.

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1 8. The method of claim 1, wherein removing
2 power comprises removing power from the first payload
3 signal, the second header signal, and the second
4 payload signal.

1 9. The method of claim 1, wherein removing
2 power comprises removing power from the first header
3 signal, the first payload signal, and the second
4 payload signal.

1 10. The method of claim 1, wherein transmitting
2 comprises transmitting to form a single frame a first
3 header signal, a first payload signal, a second header
4 signal, a second payload signal, at least one
5 additional header signal, and at least one additional
6 payload signal;

7 when the power gating signal is active, removing
8 power from at least one of the first header signal and
9 first payload signal in combination, the second header
10 signal and second payload signal in combination, and
11 the additional header signal and the additional
12 payload signal in combination.

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1 ~~11.~~ A power gating module for power gating a
2 downlink beam frame signal, the power gating module
3 comprising:

4 a power amplifier for amplifying for transmission
5 frame signals including at least a first header
6 signal, a first payload signal, a second header
7 signal, and a second payload signal;

8 a power gating circuit coupled to the power
9 amplifier, the power gating circuit including a power
10 gate input and responsive to a power gating signal to
11 remove power from at least one of the first header
12 signal and first payload signal in combination, and
13 the second header signal and second payload signal in
14 combination before amplification by the power
15 amplifier.

1 12. The power gating module of claim 11, wherein
2 the power gating circuit comprises a digital modulator
3 with a gating control input connected to the power
4 gate input and a bandpass filter with a predetermined
5 passband coupled to a modulator output of the digital
6 modulator.

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1 13. The power gating module of claim 12, wherein
2 the digital modulator outputs a modulated signal with
3 frequency content outside the passband in response to
4 the power gating signal.

1 14. The power gating module of claim 13, wherein
2 the frequency content is substantially DC frequency
3 content.

1 15. The power gating module of claim 12, wherein
2 the digital modulator is a QPSK modulator and further
3 comprising an Inphase gate and a Quadrature gate
4 coupled to the digital modulator.

1 16. The power gating module of claim 15, wherein
2 the Inphase gate and the Quadrature gate are held in a
3 known output state in response to the power gating
4 signal.

1 17. The power gating module of claim 11, wherein
2 the power gating signal is active during the first
3 header signal, the first payload signal, the second
4 header signal, and the second payload signal.

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1 22. The power gating module of claim 20, wherein
2 the power gating signal is active based in part on the
3 feed path selection of the first hop location or the
4 second hop location.

1 ~~23.~~ A power gated frame signal comprising:

2 a single frame comprising at least a first header
3 signal, a first payload signal, a second header
4 signal, and a second payload signal,

5 wherein at least one of the first header signal
6 and first payload signal in combination, and the
7 second header signal and second payload signal in
8 combination is power gated.

1 24. The power gated frame signal of claim 23,
2 wherein the single frame further comprises at least
3 one additional header signal, and at least one
4 additional payload signal, and

5 wherein at least one of the first header signal
6 and first payload signal in combination, the second
7 header signal and second payload signal in
8 combination, and the additional header signal and the

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9 additional payload signal in combination is power
10 gated.

1 25. The power gating module of claim 23, wherein
2 the first header signal, the first payload signal, the
3 second header signal, and the second payload signal
4 are power gated.

1 26. The power gating module of claim 23, wherein
2 the first payload signal, the second header signal,
3 and the second payload signal are power gated.

1 27. The power gating module of claim 23, wherein
2 the first header signal, the first payload signal, and
3 the second payload signal are power gated.

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